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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
LUGO, DAVID B

ART UNIT	PAPER NUMBER
2634	14

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/204,370	ATARIUS ET AL.	
	Examiner	Art Unit	
	David B. Lugo	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,18,19,21,22,24,26,27,29 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16,18,19,21,22,24,26,27,29 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This Office action, in response to Applicant's amendment filed on 6/5/03, is a final Office action.

Response to Arguments

2. The objection of claims 21, 22, 24 and 26 has been withdrawn.

3. Applicant's arguments, see pages 8-12, filed 6/5/03, with respect to the rejection of claims 1-13, 19 and 21 in view of Kondo have been fully considered and are persuasive. The rejection of claims 1-7, 19 and 21 under 102(e) as being anticipated by Kondo, and claims 8-13 under 103(a) in view of Kondo have been withdrawn.

4. Applicant's arguments filed 6/5/03 with respect to the rejection of claims 1-16, 18, 19, 21, 22, 24, 26, 27, 29 and 31 in view of Kitade have been fully considered but they are not persuasive.

5. Regarding claim 1, Applicant argues that Kitade does not teach a "second stage configured to use the first set of more than N paths, the input signal and a quality signal from the RAKE receiver to generate a set of N paths", and does not disclose that "the second stage generates the set of N paths more frequently than the first stage generates the set of more than N paths". In response to Applicant's argument that the second stage of Kitade, considered to comprise tracking correlators 102 in Fig. 1, does not use the first set of more than N paths generated by the first section, considered to comprise searcher 100, to generate a set of N paths, Kitade describes in page 12, paragraph 12, that the searcher 100 provides correlation information to searching process part 106, which provides the phase of each candidate path to spreading code generator 103. Spreading code generator 103 supplies spreading codes to tracking correlators

102. As described in page 13, paragraph 15, correlator 102 receives the phase of each of the more than N (i.e., three) candidate paths as inputs, and provides the phase of N paths (i.e., two) in conjunction with path selection equipment 109 to selector 106. Thus, the second stage does indeed use the first set of more than N paths to generate a set of N paths by using the phase information of each of the more than N candidate paths supplied by spreading code generator 103. Further, correlator 102 is shown in Fig. 1 to receive the input signal. The newly added claim limitations stating that the second stage uses "a quality signal from the RAKE receiver" and "generates the set of N paths more frequently than the first stage generates the set of more than N paths" are addressed in the rejection of claim 1 below.

6. With respect to claim 19, Applicant argues that Kitade fails to disclose "a selector configured to use the input signal, the set of candidate paths and a quality signal from the RAKE receiver to select a smaller set of candidate paths". In response, using reasoning similar to that provided above in connection with claim 1, the selector, considered to comprise tracking correlator 202, synthesis equipment 210, path selection equipment 209, and the part of searching process part 206 that controls the phase given to each correlator for modulation 204, is shown in Fig. 2 to use the input signal, and further uses the set of candidate paths to generate a smaller set of candidate paths by using the phase information of each candidate path supplied by spreading code generator 203. The newly added limitation of the selector using "a quality signal from the RAKE receiver" is addressed in the rejection of claim 19 below.

7. Regarding claim 14, Applicant argues that Kitade and Kubo et al. fail to disclose "a selector configured to use the input signal, the set of candidate paths and a quality signal from the RAKE receiver to select a subset of candidate paths that are used to configure the RAKE

receiver". In response, as described above, the selector considered to comprise tracking correlator 202, synthesis equipment 210, path selection equipment 209, and the part of searching process part 206 that controls the phase given to each correlator for modulation 204 is shown to use the input signal and is considered to use the set of candidate paths to select a subset of candidate paths. The newly added limitation of the selector using "a quality signal from the RAKE receiver" is addressed in the rejection of claim 14 below.

8. Regarding claim 22, Applicant argues that Kitade and Kubo et al. do not disclose performing the step of "selecting a second set of paths from the first set of paths based on a set of correlation values and a quality signal from the RAKE receiver". As described above, Kitade discloses the step of selecting a second set of paths from the first set of paths based on a set of correlation values. The newly added limitation of selecting a second set of paths based on "a quality signal from the RAKE receiver" is addressed in the rejection of claim 22 below.

9. Regarding claim 27, Applicant argues that Kitade and Kubo et al. do not disclose performing the step of "selecting a second set of paths from the first set of paths based on the correlation values, the input signal and a quality signal from the RAKE receiver". As described above, Kitade discloses the step of selecting a second set of paths from the first set of paths based on a set of correlation values and the input signal. The newly added limitation of selecting a second set of paths based on "a quality signal from the RAKE receiver" is addressed in the rejection of claim 27 below.

10. Accordingly, claims 1-16, 18, 19, 21, 22, 24, 26, 27, 29 and 31 stand rejected.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitade Japanese Patent No. 10-164011 (English translation) in view of Daudelin U.S. Patent 6,072,807.

13. Regarding claim 19, Kitade discloses a RAKE receiver in Figure 2 comprising a searcher 200 using an input signal to find a set of M candidate paths, a selector, considered to comprise tracker 202, spreading code generator 203, searching process part 206, synthesis equipment 210 and path selection equipment 209, using the input signal and the candidate paths to select a smaller set of candidate paths, where the selector comprises k*M correlators to generate M estimates, where K correlators are assigned to each of the selected paths (see paragraph 21).

14. Kitade does not teach that the selector receives a quality signal from the RAKE receiver.

15. Daudelin discloses a finger assignor that receives quality signals from a rake receiver for assigning signals to the fingers of the rake receiver (see col. 6, lines 18-43).

16. It would have been obvious to one of ordinary skill in the art to use a quality signal to select paths to be configured to the fingers of a rake receiver, as taught by Daudelin, in the selector of Kitade to enable the RAKE receiver to offer optimal performance as its fingers will demodulate the best constituent signals (see Daudelin, col. 3, lines 8-10).

17. Regarding claim 21, the M estimates are used to generate the smaller set of candidate paths (see Kitade, paragraph 21).

18. Claims 1-10, 13-16, 18, 22, 24, 26, 27, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitade in view of Daudelin and Kubo et al. U.S. Patent 6,456,827.

19. Regarding claim 1, Kitade discloses a RAKE receiver with N fingers in Fig. 1 and 2 having a first stage, considered to comprise searcher 200, using an input signal to find a set of more than N paths, a second stage, considered to comprise the portion of searching process part 206 that outputs the phase of the candidate paths to spreading code generator 203, spreading code generator 203, tracker 202, synthesis equipment 210 and path selection equipment 209, using the first set of more than N paths and the input signal to generate a set of N paths, and a third stage, considered to comprise the portion of searching process part 206 that provides the phase of the spreading codes given to code generators 205, configured to use the set of N paths to configure the N fingers 204 of the Rake receiver (see page 13, paragraph 15).

20. Kitade does not expressly disclose that the second stage uses a quality signal from the RAKE receiver, and generates the set of N paths more frequently than the first stage generates the set of more than N paths.

21. Daudelin discloses a finger assignor that receives quality signals from a rake receiver for assigning signals to the fingers of the rake receiver (see col. 6, lines 18-43).

22. It would have been obvious to one of ordinary skill in the art to use a quality signal from the rake receiver to select the optimal paths for demodulation by the rake receiver, as taught by Daudelin, in the selection of the paths used for demodulation generated by the second stage in the apparatus of Kitade to enable the RAKE receiver to offer the best performance as its fingers will demodulate the best constituent signals (see Daudelin, col. 3, lines 8-10).

23. Kubo et al. disclose a RAKE receiver where a timer 54 is started by a signal from a counter, and a search operation is not performed until a set time elapses (col. 8, lines 41-45).

24. It would have been obvious to one of ordinary skill in the art to use a counter as disclosed by Kubo et al. to control the search frequency of a searcher in the RAKE receiver of Kitade in order to conserve power consumed by the searcher (see Kubo et al., col. 6, lines 26-31). The second stage in the combination of Kitade, Daudelin and Kubo is thus considered to generate paths more frequently than the first stage, as the searcher operates only at distinct times to conserve power, while the second stage constantly outputs the best signals for demodulation of the RAKE receiver for optimal performance.

25. Regarding claim 2, the first stage is configured to find a set of M paths, and the second stage comprises M correlators to generate the set of N paths (see paragraph 15).

26. Regarding claim 3, Kitade further teaches the use of 3*M correlators to generate M estimates in paragraph 21, as the correlation value of a peak value output by the searcher and the correlation values 1 chip before and 1 chip in front of the peak value are tracked.

27. Regarding claim 4, the M estimates are used to generate a second set of paths.

28. Regarding claims 5-7, Kitade describes in paragraph 17 that a new set of N paths are created from the input signal and the first set of more than N paths.

29. Regarding claim 8, Kitade discloses that the searcher comprises correlators, but does not disclose that the searcher comprises a matched filter. However, searchers using matched filters are well known in the art (see Kubo et al., col. 5, line 58). It would have been obvious to one of ordinary skill in the art to use a searcher using a matched filter in the RAKE receiver of Kitade as searchers using matched filters and those using correlators are well-recognized art equivalents.

30. Regarding claim 9, Kitade discloses a RAKE receiver as discussed above, and further describes in paragraph 17 that the second stage can generate a new set of N paths from the first set of more than N paths.

31. Kitade does not expressly disclose that the searcher is inactive when the second stage generates the new set of N paths.

32. Kubo et al. disclose a RAKE receiver where a searcher is put in an inactive mode (col. 8, lines 41-45).

33. It would have been obvious to one of ordinary skill in the art to use a searcher that may be placed in an inactive mode as disclosed by Kubo et al. in the RAKE receiver of Kitade in order to conserve power consumed by the searcher (see Kubo et al., col. 6, lines 26-31).

34. Regarding claim 10, the second stage is configured to generate a new set of N paths while the first stage is active generating a new set of more than N paths.

35. Regarding claim 13, Kitade does not expressly disclose that the receiver comprises a counter, the first stage configured to generate a new set of more than N paths when the value of the counter is greater than a pre-set value.

36. Kubo et al. disclose a RAKE receiver where a timer 54 is started by a signal from a counter, and a search operation is not performed until a set time elapses (col. 8, lines 41-45).

37. It would have been obvious to one of ordinary skill in the art to use a counter as disclosed by Kubo et al. to control the search frequency of a searcher in the RAKE receiver of Kitade in order to conserve power consumed by the searcher (see Kubo et al., col. 6, lines 26-31).

38. Regarding claim 14, Kitade discloses a RAKE receiver in Figure 2 comprising a searcher 200 using an input signal to find a set of candidate paths, a selector, considered to comprise

tracker 202, spreading code generator 203, searching process part 206, synthesis equipment 210 and path selection equipment 209, using the input signal and the candidate paths to select a subset of candidate paths that are used to configure the RAKE receiver.

39. Kitade does not expressly disclose that the selector uses a quality signal from the RAKE receiver, and that the searcher is inactive when the selector generates the new subset of paths.

40. Daudelin discloses a finger assignor that receives quality signals from a rake receiver for assigning signals to the fingers of the rake receiver (see col. 6, lines 18-43).

41. It would have been obvious to one of ordinary skill in the art to use a quality signal from the rake receiver to select the optimal paths for demodulation by the rake receiver, as taught by Daudelin, in the selection of the paths used for demodulation generated by the second stage in the apparatus of Kitade to enable the RAKE receiver to offer the best performance as its fingers will demodulate the best constituent signals (see Daudelin, col. 3, lines 8-10).

42. Kubo et al. disclose a RAKE receiver where a searcher is put in an inactive mode (col. 8, lines 41-45).

43. It would have been obvious to one of ordinary skill in the art to use a searcher that may be placed in an inactive mode as disclosed by Kubo et al. in the RAKE receiver of Kitade in order to conserve power consumed by the searcher (see Kubo et al., col. 6, lines 26-31).

44. Regarding claim 15, the searcher is configured to find a set of M paths, and the second stage comprises M correlators to generate the subset of candidate paths (see Kitade, paragraph 15).

45. Regarding claim 16, Kitade discloses a RAKE receiver as discussed above, and further discloses that the searcher comprises correlators, but does not expressly disclose that the searcher

comprises a matched filter. However, searchers using matched filters are well known in the art (see Kubo et al., col. 5, line 58). It would have been obvious to one of ordinary skill in the art to use a searcher using a matched filter in the RAKE receiver of Kitade as searchers using matched filters and those using correlators are well-recognized art equivalents.

46. Regarding claim 18, the selector is configured to generate a new subset of paths while the searcher is active generating a new set of candidate paths.

47. Regarding claims 22 and 27, Kitade teaches a method for configuring a RAKE receiver where a searcher 200 finds and searches a first set of paths to generate a first set of correlation values, a selector 206 selects a second set of paths from the first set of paths based on a second set of correlation values generated by tracking correlators 202. Kitade further describes in paragraph 17 that the selector can update the second set of paths from the first set of paths.

48. Kitade does not expressly disclose that the selector uses a quality signal from the RAKE receiver, and that the searcher is inactive not updating the first set of paths when the selector is updating the second set of paths.

49. Daudelin discloses a finger assignor that receives quality signals from a rake receiver for assigning signals to the fingers of the rake receiver (see col. 6, lines 18-43).

50. It would have been obvious to one of ordinary skill in the art to use a quality signal from the rake receiver to select the optimal paths for demodulation by the rake receiver, as taught by Daudelin, in the selection of the paths used for demodulation generated by the second stage in the apparatus of Kitade to enable the RAKE receiver to offer the best performance as its fingers will demodulate the best constituent signals (see Daudelin, col. 3, lines 8-10).

51. Kubo et al. disclose a RAKE receiver where a searcher is put in an inactive mode (col. 8, lines 41-45).

52. It would have been obvious to one of ordinary skill in the art to use a searcher that may be placed in an inactive mode as disclosed by Kubo et al. in the RAKE receiver of Kitade in order to conserve power consumed by the searcher (see Kubo et al., col. 6, lines 26-31).

53. Regarding claims 24 and 29, the second paths are updated when the searcher generates a new first set of paths.

54. Regarding claims 26 and 31, Kitade discloses tracking correlators 202 for tracking the first set of paths.

55. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitade in view of Daudelin, Kubo et al. and Bruckert et al. U.S. Patent 5,987,012.

56. Regarding claim 11, Kitade in combination with Daudelin and Kubo et al. disclose a RAKE receiver as discussed above, but do not expressly disclose that the searcher generates a new set of paths when a quality signal is less than a threshold value.

57. Bruckert et al. disclose in column 4 lines 1-11, a searcher that searches for signals of higher quality and strength when a current signal falls below an acceptable quality value.

58. It would have been obvious to one of ordinary skill in the art to use the teachings of Bruckert et al. of searching for a higher quality signal when a current signal falls below an acceptable quality value, in the RAKE receiver of in order to reduce errors associated with processing signals of poor quality.

59. Regarding claim 12, the third stage is configured to use paths from the second stage until the first stage generates a new set of paths.

Conclusion

60. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Alexandria, VA 22313-1450

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(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dbl
8/20/03

YOUNG T. TSE
PRIMARY EXAMINER